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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,155	10/22/2003	Gordon J. Frost	25281B	9517

22889 7590 01/22/2009

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EXAMINER	
DANIELS, MATTHEW J	
ART UNIT	**PAPER NUMBER**
1791	
MAIL DATE	**DELIVERY MODE**
01/22/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,155	FROST ET AL.	
	Examiner	Art Unit	
	MATTHEW J. DANIELS	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-90* is/are pending in the application.

4a) Of the above claim(s) *25-90* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-6, 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499).

JP 08-323872 teaches the basic claimed process of making a fiber reinforced composite wall panel (seamless cladding panel) including, providing a mold, spraying a gel coat (21) (coating layer) against the mold surface, applying a first layer of fibers and resin (22) (first laminate layer), applying a central layer of fibers and resin (23) (core layer), applying a second layer of fibers and resin (24 or 26) (second laminate layer) and curing the resin to form said fiber reinforced composite wall panel (see Abstract and, Figures 5 and 7).

Regarding claim 1, JP 08-323872 does not teach applying a facing veil layer over the second laminate layer, wherein the facing veil layer includes fibers and a binder and further, wherein the resin of the second laminate layers wets the fibers of the facing veil layer. However, the use of a facing veil layer is well known as evidenced by Grisch (‘499) who teaches a resin impregnated veil layer that is applied over a fiber reinforced composite, wherein the resin of the fiber reinforced composite flows though the veil layer (see col. 3, lines 4-14, col. 5, lines 54-66). Therefore, it would have been obvious for one of ordinary skill in the art to apply a surface veil layer as taught by Grisch (‘499) to the laminate in the process of JP 08-323872 because (a)

Grisch ('499) specifically teaches that a surface veil layer provides for improved corrosion resistance, hence providing for an improved product, (b) doing so creates a barrier on the surface of the veil or fabric that holds the reinforcing fibers internal to the composite, and/or (c) application of a "veil" or fabric to a fibrous material is a known and conventional technique, and application of this technique to the process of JP 08-323872 would merely provide yield the predictable result that the reinforcing fibers would be held together.

In regard to claims 2 and 3, JP 08-323872 teaches spraying a gel coat layer (21) and curing said gel coat layer prior to applying the first layer of fibers and resin (22) (first laminate) (see Abstract).

Specifically regarding claims 4-6 and 16, JP 08-323872 teaches a first layer of glass fibers and resin (22) (first laminate layer), a central layer of glass fibers and resin (23) (core layer) and a second layer of glass fibers and resin (24) (second laminate layer). Further, JP 08-323872 teaches a polyester resin. It is submitted that a polyester resin is curable at room temperature.

Regarding claims 18 and 19, JP 08-323872 does not teach that the first and second laminates are composed of a plurality of layers. However, Grisch ('499) teaches that the number of layers required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Therefore, it would have been obvious for one of ordinary skill in the art to provide multiple fiber-reinforced layers as taught by Grisch ('499) to the fiber reinforced laminate in the process of JP 08-323872 because, Grisch ('499) specifically teaches that the number of layers required by a fiber-reinforced laminate depends on the desired

mechanical characteristics, hence providing for an improved product with superior mechanical characteristics.

2. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 8, although JP 08-323872 in view of Grisch ('499) teaches a polyester resin, JP 08-323872 in view of Grisch ('499) do not teach that the polyester resin is curable at 80 ^{O}F for about 45 minutes. Bledsoe *et al.* (US 2003/0143373 A1) teach a gel coat polymer resin that cures at room temperature (80 ^{O}F) in 35 minutes (about 45 minutes). Therefore, it would have been obvious for one of ordinary skill in the art to cure at 80 ^{O}F for about 45 minutes as taught by Bledsoe *et al.* (US 2003/0143373 A1) the gel coat layer in the process of JP 08-323872 in view of Grisch ('499) because, Bledsoe *et al.* (US 2003/0143373 A1) teach that such curing provides for a hard, outer coating, hence providing for a laminate with improved aesthetic qualities and also because, JP 08-323872 in view of Grisch ('499) teaches a polyester resin, which is a room temperature curable resin, hence suggesting the curing conditions of Bledsoe *et al.* (US 2003/0143373 A1).

In regard to claim 9, JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) do not teach heat curing of the gel coat. However, the use of heat to cure a polymer resin is well known. Therefore, it would have been obvious for one of

ordinary skill in the art to provide a heating oven to cure the polymer gel coat in the process of JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) because of known advantages that heat curing provides such as, reduced curing time, hence providing for an improved process by increasing productivity.

Specifically regarding claim 10, JP 08-323872 in view of Grisch ('499) does not teach removing trapped air from the first laminate. Bledsoe *et al.* (US 2003/0143373 A1) teaches a process for making a seamless fiber-reinforced panel including, providing a mold surface, applying a gel coat layer, applying a first layer of fibers and resin (first laminate layer) and applying a central reinforcement layer (see ¶¶ 13-16). Further, Bledsoe *et al.* (US 2003/0143373 A1) teaches removing trapped air form the first layer of fibers and resin prior to applying the central reinforcement layer (see ¶ 14, lines 32-35). Therefore, it would have been obvious for one of ordinary skill in the art to remove trapped air as taught by Bledsoe *et al.* (US 2003/0143373 A1) from the first layer of fibers and resin prior to applying the central reinforcement layer in the process of JP 08-323872 in view of Grisch ('499) because of known advantages such as, reduced porosity, which results in obtaining a fiber-reinforced laminate having superior mechanical characteristics.

3. Claims 11-15, 17 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Kia *et al.* (US 2004/0023012 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claims 11-13, JP 08-323872 in view of Grisch ('499) do not teach a specific fiber content and thickness of the laminate layers. However, Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Further it is noted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content. Kia *et al.* (US 2004/0023012 A1) teach a fiber-reinforced laminate having a fiber-reinforced laminate layer (18) including 20-60% by weight reinforcing fibers (see Abstract) and a thickness of about 10 mm (about 0.45 inches). Therefore, it would have been obvious for one of ordinary skill in the art to provide 20-60% by weight reinforcing fibers and a laminate layer thickness of 10 mm (0.45 inches) as taught by Kia *et al.* (US 2004/0023012 A1) to the laminate layers in the process of JP 08-323872 in view of Grisch ('499) because Kia *et al.* (US 2004/0023012 A1) teach that such a proportion is appropriate for providing the strength of the entire laminate (see ¶ 17, lines 3-4) such that the resulting product functions as desired. Further, because the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber content of 23-25% in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that the fiber content in the laminate determines the strength of the laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, hence because the fiber content is a result-effective variable. Furthermore, because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, it

would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum layer thickness of 0.45 inches in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, hence because the layer thickness is a result-effective variable.

In regard to claim 14, JP 08-323872 teaches chopped glass fibers.

Specifically regarding claims 15 and 20, JP 08-323872 teaches a fiber length of approximately 0.5 inches in the first and second laminates and, about one inch in the central layer. Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a length of 0.25-1 inches. It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber length, hence that the fiber length is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber length of 0.625 inches in the first and second laminates and, one inch in the central layer in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that is known to use glass fibers having a fiber length of 0.25-1 inches in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber length, hence because the fiber length is a result-effective variable.

Regarding claim 17, JP 08-323872 in view of Grisch ('499) does not teach a curing agent. Noting that JP 08-323872 in view of Grisch ('499) teaches a polyester resin, it is further noted that, Kia *et al.* (US 2004/0023012 A1) teach 1.95% by weight MEKP as a typical curing agent for room temperature curing of polyester (see ¶ 47, lines 14-15 and ¶ 53). Therefore, it would have been obvious for one of ordinary skill in the art to provide 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1) to cure the polyester resin at room temperature in the process of JP 08-323872 in view of Grisch ('499) because, Kia *et al.* (US 2004/0023012 A1) specifically teach that 1.95% by weight MEKP provides for room temperature curing, hence providing for a simpler process by eliminating the need of heating equipment and also because, JP 08-323872 specifically teaches a polyester resin, hence suggesting the use of 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1).

Regarding claims 21 and 23, JP 08-323872 in view of Grisch ('499) does not teach a fiber diameter of 11-13 μm. Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a diameter of 5-15 μm (see ¶ 45). It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber diameter, hence that the fiber diameter is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber diameter of 5-15 μm of the glass fibers in the core and veil layers in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that is known to use glass fibers having a fiber diameter of 5-15 μm in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a

fiber-reinforced composite are determined by the fiber diameter, hence because the fiber diameter is a result-effective variable.

In regard to claims 22 and 24, Grisch ('499) teach that acrylic resin is an equivalent alternative to polyester resin (see col. 3, lines 38-41). Therefore, it would have been obvious for one of ordinary skill in the art to use an acrylic resin as taught by Grisch ('499) as an equivalent alternative to the polyester resin in the process of JP 08-323872 in view of Kia *et al.* (US 2004/0023012 A1) because, Grisch ('499) teach that acrylic and polyester resins are equivalent alternatives in making fiber-reinforced laminates.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Reinisch (US Patent No. 4,261,330).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 7, although JP 08-323872 in view of Grisch ('499) teach spraying a gel coating, JP 08-323872 in view of Grisch ('499) do not teach that the gel coating is a dry polymer film layer. Reinisch ('330) teaches that a spray coated polyester el coat and an acrylic film are equivalent alternatives for providing an exterior coating for a laminate (see col. 10, lines 57-59). Therefore, it would have been obvious for one of ordinary skill in the art to provide an acrylic film as taught by Reinisch ('330) as an equivalent alternative to the gel coating in the process of JP 08-323872 in view of Grisch ('499) because, Reinisch ('330) specifically teaches that a spray coated polyester gel coat and an acrylic film are equivalent alternatives for providing an exterior

coating for a laminate that provides for improved weatherbility, hence providing for an improved product.

Response to Arguments

5. Applicant's arguments filed 17 October 2008 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) In the instant invention, a light facing veil is introduced onto the second laminate layer. The light facing veil comprises a fibrous strand and binder system, and a portion of the resin from the second laminate layer wets out the fibrous strand. The light facing veil applied onto the second laminate layer results in a smooth back surface of the resulting panel.

b) Kino does not disclose or suggest a veil onto the second laminate layer.

c) Grisch uses a synthetic-fiber surfacing veil to protect the SMC parts from chemical and physical exposure. Specifically, the veil is placed on one of the die elements and then placing the veil over the SMC fabric to make up the total charge, which is then compression molded.

d) In essence, Grisch teaches using the veil and fabric layer to protect the fibers in the SMC from corrosion and abrasion by placing this veil or fabric between the outer surface of the SMC and the fibers within the SMC. At most, Grisch, suggests incorporating a veil between the gel layer and the short fiber reinforced layer of Kino. In providing a barrier against wear and tear, it is clear that such a barrier would not be applied to the short fiber backup layer since the back surface would not be subject to wear and tear.

e) The other references do not cure the deficiencies of Kino and Grisch.

6. These arguments are not persuasive for the following reasons:

a,b) While the Examiner does not disagree with the summary of the invention, it is noted that the smooth back surface which is formed on the back surface of the second laminate layer does not appear to be distinguishable from the process disclosed by Grisch, which introduces a similar layer for a similar purpose or to achieve a similar result. In this view, Kino provides a base process upon which the claimed invention can be seen as an improvement. However, the prior art provides a similar or comparable process improved in the same way to provide the same improvement disclosed by Applicants – to provide a smooth backing surface. From this record, it is unclear why one would have found it nonobvious to apply the known improvement of Grisch to other processes where fiber/resin composite materials are used.

c,d) The Examiner respectfully disagrees that protection of the backside of the Kino article with the veil of Grisch would have been nonobvious. In addition to reducing corrosion, a smooth layer produced using the veil of Grisch would reduce the roughness and porosity of the surface which would improve appearance and the ability to clean the surface. In producing articles which may be used as bathtubs, it is submitted that the benefits of a smooth, corrosion resistant surface would have been obvious.

e) Since the rejections of Claim 1 is still believed to be valid, the other rejections based thereon are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
1/19/09